

annual report



ALBERTA CANCER BOARD.

1986/87 





Cancer is a matter of life and death. The death we know well: almost every Alberta family has been touched by cancer. The life is far less visible. With advances in medicine, almost half of cancer patients survive for over five years and some live for decades. As this report shows, these patients and the people who care for them are extraordinary.

*Cover: David Kyte, a successfully treated cancer patient, with his daughter.
(See page 12)*

*Above: Alice Weinlick demonstrates a narcotic pump to a patient's sister.
(See page 19)*

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Annual Report 1986/87

Alberta Cancer Board

*Tom Baker
Cancer Clinic*

*Cross Cancer
Institute*

*Central Alberta
Cancer Centre*

*Lethbridge
Cancer Clinic*

Outreach Clinics



Alberta Cancer Board
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Edmonton, Alberta T5K 2L9
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2 Chairman's Letter



Mr. Marvin E. Moore
The Hon. Minister of Hospitals and Medical Care
423 Legislature Building
Edmonton, Alberta
T5K 2B6

Dear Mr. Minister:

The Alberta Cancer Board has a multipart mandate to provide cancer patients with high quality care. This report of the Board's work for 1986-87 is a story about how the activities of a caring group of people have helped Albertans with cancer. I am delighted to send it to you on behalf of the Board and to express the gratitude of the employees of the Board and the patients they serve for the continuing generous support of the cancer program by the Alberta Government.

A handwritten signature in black ink, appearing to read 'V. Glenn Sundstrom'. The signature is stylized with a large loop at the beginning and a long horizontal stroke extending to the right.

V. Glenn Sundstrom
Chairman, Alberta Cancer Board

It is my pleasure to reflect on the activities of the Alberta Cancer Board for the period April 1, 1986, to March 31, 1987. Although my own involvement with the Board at March 31st is limited, I would like to share with you some of my initial observations on the outstanding features of our cancer program.

First and foremost, I am impressed with the philosophy that prevails throughout the organization: that is, a desire to treat the patient, not just the cancer. This is accomplished by a holistic approach to patient care within the framework of a comprehensive cancer program. This philosophy is shared by all within the Centres and I am proud to be part of it.

I admire the foresight and commitment to providing a truly comprehensive cancer service demonstrated by the members of the Alberta Cancer Board in appointing the "Advisory Committee on Research." This is a seven-member council of world-renowned scientists from across the Country, who advise the Board on future directions in cancer research. In time, participation in clinical trials and application of new knowledge and technologies will necessarily translate into better treatments and improved quality of life. This is an investment in our future.

I am awed with the hard work and outstanding service provided by hundreds of volunteers across the Province. Their warmth and experience are recognized and deeply appreciated by patients and staff alike. I am also impressed by the generosity of the many donors—corporations, patients, families and friends. These gifts of support to the Alberta Cancer Foundation allow us to respond to the challenges before us.

The dedication, compassion, and excellence of our staff, who care for an increasing number of patients, is exemplary. During the past twelve months, cancer has come to the lives of another 10,000 Albertans and their families. Cancer incidence continues to increase and one in four Albertans will develop some form of cancer before they reach age 75. I am indebted to the physicians, nurses and support personnel who continue, day after day, to work harder in order to provide the best of care despite overcrowded facilities and aging equipment. A major expansion of the Cross Cancer Institute in Edmonton is in the planning stage and the need for additional space for the Tom Baker Cancer Centre in Calgary is already on the horizon.

Finally, I am grateful for the cooperation extended to the Board and myself by other health care facilities, the two Universities, the Alberta Heritage Foundation for Medical Research and the Alberta Division of the Canadian Cancer Society.

I invite you to read the annual report of the Alberta Cancer Board and share our successes and accomplishments with enthusiasm and pride.



Jean-Michel Turc M.D.,
Executive Director, Alberta Cancer Board

Cancer care requires special health care resources because it is such a prevalent, devastating, and still largely misunderstood disease. In 1968 the Government of Alberta created the Alberta Cancer Board to coordinate cancer care services and provide the resources necessary for quality care.

According to the act, the Board must address patient care, education, research, and prevention, and maintain the Alberta Cancer Registry.

These responsibilities are administered and coordinated through the central office in Edmonton and carried out primarily in the Alberta cancer clinics. Staff in the clinics are employees of the Board, but many have dual appointments with Alberta universities and hospitals for cooperative teaching and research.

BOARD OF TRUSTEES

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Mr. R. Bodner (From Nov. 1/86)
Dr. J. Bugis
Dr. D.D. Chesney
Mr. A.D. Davis
Mr. V.P. Douglas
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Mr. T.E. Poppitt
Mrs. V. Thom (Until Oct. 31/86)
Mme. Justice M.J. Trussler
(Until Feb. 2/87)

EXECUTIVE DIRECTOR

Dr. James Pearson, M.B.
(Until December, 1986)
Dr. Jean-Michel Turc, M.D.
(Effective January 1987)

ACOR

The Alberta Cancer Board Advisory Committee on Research (ACOR) is an independent body with members from outside Alberta. It provides a critical assessment on the quality of science in ACB activities, particularly research.

CHAIRMAN:

Dr. Michael Baker
Director, Oncology Clinic
Toronto General Hospital

MEMBERS:

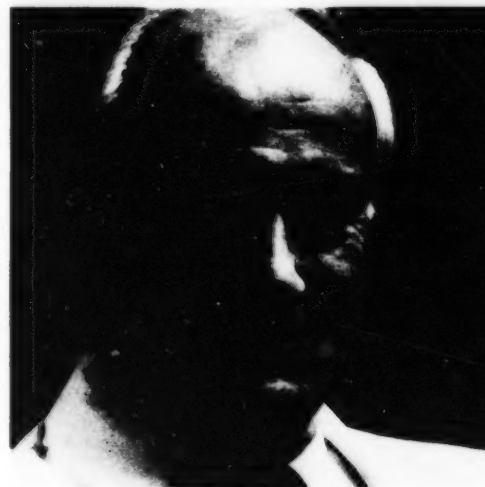
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Dr. Arnie Greenberg
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Dr. Theodore Phillips
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Oncology
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San Francisco
Dr. Joseph Shuster
Director, Clinical Immunology
Montreal General Hospital
Dr. James Till
Ontario Cancer Institute, Toronto
Dr. Jerome Yates
Associate Director, Clinical Affairs
Roswell Park Memorial Institute
Buffalo, New York

SCIENTIFIC OFFICER:

Dr. Hans van de Sande
Department of Medical Biochemistry
University of Calgary



Dr. Martin Jerry



Dr. Neil MacDonald

THE TOM BAKER CANCER CENTRE

Director: Dr. Martin Jerry

Since it moved to its new facilities in 1982, the Tom Baker Cancer Centre has developed rapidly from a small outpatient clinic with limited therapy to a major centre offering comprehensive cancer care. It provides outpatient services and radiation therapy for patients in Southern Alberta and operates an outreach clinic in Medicine Hat. Twenty five professional and 200 support staff, assisted by 115 community consultants, operate 15 multi-disciplinary tumor-oriented programs serving 20,000 patients a year.

Diagnostic and support services are purchased from the Foothills Hospital which provides inpatient beds, as does the Alberta Children's Hospital for pediatric patients. Affiliation agreements with the Foothills and University of Calgary staff enable the Tom Baker Centre to carry out education and research programs.

"The uniqueness of this cancer clinic, is that, unlike many others, research and clinical care come together through our connections to the Foothills Hospital and the U. of C. medical school," says Dr. Martin Jerry. "Research is what gives excellence to patient care.

"The staff have a motto—TBCC stands for 'the best cancer care' and ours is as good as any in North America. We're interested in the host as well as the tumor and this is reflected in our research, our medical care and the psychosocial and prevention programs we've founded. Though we've grown rapidly in scope and depth, we've worked hard to keep the friendly, caring atmosphere we've always emphasized."

THE CROSS CANCER INSTITUTE

Director: Dr. Neil Macdonald*

In Northern Alberta approximately 70 per cent of all new cancer cases are voluntarily referred to the Cross Cancer Institute. This figure rises to over 90 per cent for Hodgkin's Disease, testicular cancer and childhood cancers. All new cancer cases are reviewed by a group of specialists who together devise a treatment plan. The Lymphoma group, for example, consists of three internists, two radiation oncologists, a nuclear medicine specialist, a diagnostic radiologist and a pathologist.

The Institute is a tertiary care hospital. The Institute has also inaugurated a series of inter-disciplinary study groups involving physicians throughout Northern Alberta who review new protocols. Most patients are outpatients who receive their treatment in day clinics then return home or to work. Only patients requiring radiation therapy or complicated chemotherapy are hospitalized. The Departments of Gynecology and Surgery are headed by surgeons from the community, and all major surgery is carried out outside the Institute in large community hospitals.

While prevention, control and cure are aims of the Cross Cancer Institute, it has also established Palliative Care programs to alleviate the suffering of advanced cancer patients.

OUTREACH PROGRAMS

Fort McMurray Cancer Clinic; Grande Prairie Cancer Clinic; Lac La Biche Cancer Clinic; Peace River Cancer Clinic (Outreach Clinics of the Cross Cancer Institute); Medicine Hat Cancer Clinic (Outreach Clinic of the Tom Baker Cancer Centre)

LETHBRIDGE CANCER CLINIC

Director: Dr. Don Rice

THE CENTRAL ALBERTA CANCER CENTRE

Director: Dr. Neil Graham

Four years ago The Central Alberta Cancer Centre was established in Red Deer to serve central Alberta residents. Part-time Director

Dr. Neil Graham explains the goal is to treat cancer patients closer to home. Many people who formerly would have travelled to Calgary or Edmonton for active chemotherapy are now treated in Red Deer. The Centre has around 60 outpatients on chemotherapy and serves about 1200 patients in total.

Some of these are "well patients" who've had oncology surgery, usually in Red Deer, and who now have no evidence of the disease but require check-ups.

Visiting oncologists from the Cross Cancer Institute hold monthly clinics. Because there are no radiation facilities, people requiring radiation therapy go to Calgary or Edmonton.

The Central Alberta Cancer Centre exists because of the cooperation between the Red Deer Regional Hospital Centre and the Alberta Cancer Board.

The hospital provides free space for the Centre and the weekly clinics. In cooperation with the Cross, the hospital pharmacy also handles all the drugs for the outpatients as well as hospitalized patients.

The Central Alberta Cancer Centre is one of three regional clinics in the province. The Lethbridge Cancer Clinic established in 1955, is the oldest.

Headed by Dr. Don Rice, it serves 3,000 patients with programs that include chemotherapy and a colonoscopy unit.

Southern Albertans are also served by an outreach cancer clinic in Medicine Hat which provides initial diagnosis and follow-up care.

* Effective July 1987, Dr. Neil Macdonald moved from the directorship of the Cross Cancer Institute to become the first incumbent in the Palliative Care Chair of the Alberta Cancer Foundation.

On the third floor of the Cross Cancer Institute, a stereo is playing. It is coming from the Day Care Unit, a small unit with a few beds, some reclining chairs and a decidedly non-institutional atmosphere. Brenda Donnelly, the supervisor, is administering an IV to a gentleman wearing a white shirt and suit pants—not pyjamas as one might expect.

A new concept in cancer care, the Day Care Unit provides chemotherapy, blood and platelet transfusions, and minor surgery to patients who, in the past, were admitted to hospital. Fifteen years ago, chemotherapy was a new cancer treatment still under investigation. Patients were admitted to hospital and the IVs would run 24 hours a day, the treatment taking three or four days to complete. During the 1970s, improvements in chemotherapy treatment enabled both the Cross Cancer Institute and the Tom Baker Cancer Centre to establish Day Care Units where nurses administer chemotherapy on an outpatient basis. In 1979 Faye Gathercole took charge of the Calgary unit. Brenda was appointed supervisor of the Edmonton Day Care Unit in 1980.

Brenda recalls, "We were seeing an average of five to seven patients per day. I increased the population of that unit by 40 per cent in my first year. Dr. Bob Turner was a believer in Day Care and he and I would sit down and negotiate. 'I can do this, if you do that.' Over the last seven years, we have gone from having patients come in for simple treatments to patients receiving a multitude of treatments."

In Calgary at the Tom Baker Cancer Centre, Day Care is a large unit combining Day Care and Outpatient Services. At the Cross Cancer Institute, the Day Care Unit functions in conjunction with Outpatient Services, which provides a range of cancer care, from diagnosis to follow-up treatment. Day Care now also provides support to home care patients who receive their chemotherapy through portable computerized pumps (see page 19). "One gentleman is an accountant," says Brenda. "He is in rural Alberta. At work during the day and at home in the evening, his chemotherapy runs continuously. He phoned me and said, 'Can you just run through how you change the battery on this?' He was on his way to a board meeting and didn't want this thing squeaking. Normally this man would have had to come to a Day Care Unit six hours per day for 14 days or be admitted for 14 days."

Day Care has become so successful because it allows cancer patients to remain active members of society. Patients remain in their street clothes, even though the treatment can take as long as five hours. "Patients who are in the hospital often think, 'I'm in pyjamas I must be sick.'" says Brenda. "If they stay in their street clothes, it is amazing how people don't feel as sick."

Brenda adds, "My philosophy is we'll help design a treatment program around your lifestyle, not let's fit your life into

your treatment program. Patients come in, then go to their jobs. We negotiate times. 'Yes, I'll be here at 8:00 in the morning. If you want to be here at 8:00 then you can be at your job at 8:30.' They can live normal lives. They have some control."

She cites one Day Care patient who was 70 years old. "She had ovarian cancer and wanted her masters in foreign languages. She used to come in with her briefcase from university, have her treatment and consult with us. She died six months after convocating, but that was her goal and we worked her treatment around it."

Patients who stay at home with their families, rather than in hospital, seem to do better. "Loneliness is a horrible deterrent to getting better, and being in the hospital 24 hours a day when your family can maybe come one hour, you pine for your family and it is hard to get better when you're pining," says Brenda.



Being a Day Care nurse is demanding. "The challenging part," says Carolyn Taylor of the Tom Baker Cancer Centre, "is there really is a strong role for the nurse in helping the patients adjust to having cancer. Patients come to Day Care to get chemotherapy, but a lot of the other things we do for patients are just as important. Sometimes they can't stop crying. Basically you just let them express that and tell them it is normal. Once they work through some of that, we can talk about the future and what's ahead."

Brenda Donnelly explains that you can't be a good oncology nurse unless you get involved. "After many years of working here, I know what burn-out syndrome is. If a patient starts talking and I'm thinking, 'Who cares?'—if I'm not listening, then I've already done everything I can and I need to take some time off. The nurses who stay here for a long time have a very supportive home life. You'll also find they have an incredible variety of interests. In all the years

I've worked here, I've got my pilot's licence. I've travelled to 13 countries, been to China, gone White Water rafting, taken scuba diving lessons. There's no way I can think about work when I'm 70 feet down and my tank's on empty."

This year 11,500 Canadian women will develop breast cancer and about 4,000 women in Canada will die of it. In Northern Alberta, most women with breast cancer are referred to the Breast Unit at the Edmonton Cross Cancer Institute. "Most women come to the cancer clinic scared out of their wits," says Dr. Alan Lees, head of the Breast Unit. "They are afraid of dying, of pain, of unpleasant treatment and of having a mastectomy. One of the most important things is to try and put them at ease as soon as possible. It takes a lot of hard work. You talk to them, give them information."

The Breast Unit is organized around clinics, four a week. "These clinics are very lengthy," explains Dr. Lees. "Patients get a lot of time with their doctor and we go through their questions in some detail. The time you spend together at the beginning of your relationship is vital. Usually we try to see husband and wife together so we can go through the treatment and its side effects."

The purpose of this indepth patient-doctor meeting is to design the best treatment plan. A surgeon, radiotherapist and a medical oncologist will be present because the treatment of breast cancer can involve all these specialists and there are several choices for the patient and doctor to make.

Dr. Lees explains, "If a woman has a very small cancer, she doesn't need to have a mastectomy. She is treated with localized surgery and then given radiation treatment afterwards. If the lump is beyond the size that you can reasonably remove and leave a breast that looks like a breast, then she should have a mastectomy. There are pros and cons. Some women don't like the idea of preserving the breast. They feel they can't live with a breast that has had cancer. A lot of women are just afraid of radiation therapy or anything that has to do with radioactivity and nuclear power because you can't see it, you can't feel it and they imagine it burns you up."

Today about 50 per cent of women with breast cancer manage to keep both breasts. This is partly because public education programs have led to improved diagnosis: women are bringing their breast lumps to the attention of gynecologists and family doctors earlier. Also, until very recently most cancer doctors simply believed a mastectomy was the best way to treat breast cancer. But with improvements in technique, radiotherapy has become more accurate and efficient.

During the last year, Dr. Lees has taken radiotherapy a step further, using radiation implants. Nylon tubes are inserted into the breast and a machine (a micro-Selectron) sends the radioactive sources through the tubes into the breast, ensuring that only cancerous tissue is irradiated. This is a variation of Dr. Porter's work on prostate tumors (see page 10).

"This is used with women who have very small cancers," says Dr. Lees. "They have had limited surgery to remove the

cancer, and all we are doing is treating any residual tumor left behind. With these women we would expect the recurrence rate to be very low. They are going to survive for many years."

Women who have had surgery and radiotherapy and have recurrent cancers are usually treated by hormone and chemotherapy. Not all breast cancers respond to hormone treatment. The cancerous tissue must contain hormone receptors, special proteins or molecules within the cell. These receptors, never present in healthy tissue, occur in about 60 per cent of cancer tissue. In 1977, the Cross Cancer Institute established a laboratory to test biopsy samples for receptors.

Although many breast cancers are now being diagnosed early, the staff at the Breast Unit still devote much of their time to the treatment of advanced cancers that have spread. Breast cancer is a very slow growing tumor, explains Dr. Lees, and the survival rate is very high. Staff at the Breast Unit are therefore very concerned with pain control and ensuring quality of life.

Dr. Lees: "I see the patient weekly while they are here on treatment. There is also a back-up team here. The research nurses explain the treatments. The technicians who give the radiotherapy see the patient every day. They talk to them, tell them what is going on. If there is something we can't deal with, there are support services that can advise them about financial or psychological problems. The support system has increased over the years, but we have always done this because we think it is good medicine to do it. This holistic medicine—there is nothing new about it. It's just good medicine."



In May, 1984, Marilyn Barrett, a Vegreville mother of four, learned she had breast cancer. Her cyst-like breast lumps had fooled even the experts, and by the time the cancer was diagnosed, it had already spread to her lymph system. "My right breast was removed immediately," recalls Mrs. Barrett. "After radiation treatments, seven months of chemotherapy and very little pain, my cancer seemed to be in remission and I was back on my way to normality."

By May 1986, two years after the initial diagnosis, the cancer had spread to both her lungs. Hormone treatments began. Then in February 1987, it became apparent that she had an inoperable brain tumor. Intensive radiation therapy followed. Mrs. Barrett is still receiving active treatment. She drives from her home in Vegreville to the Cross Cancer Institute for chemotherapy twice a month.

"They say now that they can't even see that brain tumor, and apparently the spots on my lungs are shrinking," says Mrs. Barrett. "I know I can breathe better. It used to be I

could hardly go up and down the stairs. I do a lot of sewing, a lot of crafts. The other day I baked six dozen butter tarts, two carrot cakes, seven dozen cookies and a pumpkin pie. I'm not crippled.

"I find the care at the Cross to be a total care. If one part was missing, it wouldn't work. The doctors give me the facts and leave nothing hidden. The nurses and technicians show genuine concern, but no pity—the last thing a cancer patient wants."



“One of the major problems with putting radiation sources into patients is there is a degree of radiation exposure to the nursing and medical staff,” says Dr. Arthur Porter, radiation oncologist at the Cross Cancer Institute. “In September, 1986, we became, I believe, the first institution in the world to use remote afterloading in our prostate radiation implants. In other words, nobody goes near the patient when the radiation is in place. We have an automatic machine (micro-Selectron) that allows us to withdraw the radiation if we want to go in and see the patient. So we get very little radiation exposure.”

“In the last few years we have developed and refined prostate radiation implant therapy so that we are almost basing our treatment policy on it. We pass needles through a specially designed template called the Edmonton template, designed by our team. It was built here and already several companies would like to build it commercially.”

“It is an ideal way of delivering radiotherapy because it gets directly at the tumor, without destroying healthy tissue.”

After one year, 80 per cent of prostate cancer patients treated with radiation implant therapy at the Cross Cancer Institute are cancer free.

Implant or brachy therapy is now being used primarily to treat prostate cancer. In the near future, it will probably be used in the treatment of bladder cancer. Dr. Lees, chairman of the Breast Unit, has begun using the implant technique to treat breast cancer. “I have used the implant technique in the past,” explains Dr. Lees, “but without the micro-Selectron there was a danger to the medical staff. What is really new here is the use of the micro-Selectron which allows us to administer the radiation by remote afterloading and withdraw the radioactive sources when necessary.”

“Theoretically, it makes a lot of sense,” says Dr. Porter. “The cosmetic result may be better. If you can preserve the breast, then you want the breast to look as good as possible.”

Dr. Alan Lees came to the Cross Cancer Institute in 1975 to join Dr. Patricia Burns, a pioneer in the care of breast cancer. "Dr. Burns was already doing what I had been planning to do in England. She was beginning to collect information about breast cancer patients. Because of the huge numbers of women we see, the only way we could do this was to get onto a computer base."

Since Northern Alberta is a well-defined population area, the Institute is in the unique situation of being able to study breast cancer while treating it. Outside Canada where cancer clinics are privately run, no single clinic would be responsible for treating 80 to 90 per cent of cancer patients.

"We have seen 5,600 women since Dr. Burns started in 1971," says Dr. Lees. "We have information about all these women—their reproductive history, how they survived—so we are able to tell you exactly what the natural history of breast cancer is in Northern Alberta. The data shows that we are seeing more women with early breast cancer and are probably curing more, but since the incidence of breast cancer is increasing, the mortality rate appears to remain the same."

The statistical data collected through the Breast Unit also allows the Cross Cancer Institute to participate in clinical trials, including the National Surgical Adjuvant Breast and Bowel (NSABB) and National Cancer Institute of Canada studies. The Institute is also participating in a nation-wide breast screening study that started in 1980 and runs until March 31, 1988.

The data is also used by research groups within the Institute. "There are very few places that have good data bases," says Dr. Lees. "They may have good scientists but poor data bases. We happen to have good scientists and a good data base."



I think they should change the name of a lot of cancers—the milder ones—because people are so afraid of them,” says David Kyte who, five years ago, was successfully treated for testicular cancer. “I consider what I had to be no worse than a bad case of pneumonia.”

Testicular cancer is the most common form of cancer in young men. Only 20 years ago, no one with advanced testicular cancer survived. That situation has changed so dramatically in recent years that today 80 per cent of men with testicular cancer survive.

“My parents live in Nova Scotia and I didn’t even want to tell them and let them know I was going in for the operation. I was more concerned about them—their reaction to the whole thing. Put your own problems on the back shelf.”

David’s first visit to the Tom Baker Cancer Centre in Calgary was his longest, a lengthy interview with the team of nurses and doctors that would decide on the best combination of treatments. “You’re pretty down when things like this happen

to you. But everything was so positive. The nurses and staff just carried on as though things were fine and it helped me to maintain a good attitude.”

Every weekday morning for five weeks, David arrived at the Tom Baker Cancer Centre. “I would be there for about 45 minutes to an hour. I would come in and register, then there would be some waiting time. The actual time they zapped me would only be about one minute. Sometimes I would be tired afterwards, but I usually jumped in my car and went back to work.”

David now considers himself lucky. “It has made everything else seem trivial. If you get anxious or upset at work, you look back and think, it’s really not so bad.

“I still go back every year but so far I am okay.” And with a smile, “I have one child and another one on the way.”





Cancer is a leading cause of childhood deaths and second only to accidents. However, every child diagnosed with cancer does not die. Dr. John Akabutu, head of the Northern Alberta Pediatric Oncology Program at the Cross, explains, "In 1949 childhood cancer was a death sentence, but not necessarily now. There is a cure rate of 50 per cent with a rate as high as 80 per cent in some kinds of cancers."

Pediatric oncology is a specialized branch of medicine, not only because the patients are children requiring special loving care, but because childhood cancer is not the same as the adult disease. The childhood variety is believed to be related to developmental causes and is not associated with environmental causes. The majority of cases are diagnosed among young children three to seven years old.

Leukemia is still the most prevalent form and acute leukemia is one area where, with medical research, the success rate has gone from nil to over 65 per cent. Other forms such as neuroblastoma are still devastating with little hope of recovery.

To the parent of a child diagnosed with the disease, none of the statistics matter. They have a very sick child who may not live.

Physicians, nurses, and social workers work as a team to help the patient and his parents cope with the disease.

"It's easier for them if they can see what you're trying to do," says Dr. Akabutu. "It helps when you have confidence in what you do—part of the fear is ameliorated. And I do have confidence that we offer the best care available for the children."

The care at Edmonton and Calgary is backed by access to physicians and research protocols throughout North America, as part of the Northern American Pediatric Oncology Group. This means Alberta physicians are on the leading edge of knowledge in the field. For example, children requiring bone marrow transplants go to Minneapolis for the specialized procedure.

This collaborative network is important because no one centre has enough patients with sub-classes of cancer to run meaningful clinical trials. "The vast majority of our acute leukemia patients are put on clinical studies," says Dr. Ron Grant, acting head of Pediatric Oncology at the Tom Baker Cancer Centre. The trials frequently focus on the most effective kind of chemotherapy. They include analysis of blood and bone marrow to see if it is possible to determine which children need aggressive therapy and which need less.

Working with cancer kids is high stress work for everyone. "Sometimes we need the social worker as much as the families do," says Dr. Grant.

The stress is higher, and when things work out well, the satisfaction greater, because a strong bond develops between the children and staff. "We have respect for each other," says Dr. Akabutu. "The older ones especially hate the therapy, but they work with us as a team. The little ones scream, but they hold their arm still for the needle."

The bond is so strong that, when grown-up, some patients come back to visit their friend Dr. Akabutu, the guy they affectionately called "Shorty."

I was trained as a radiotherapy technician and worked for a number of years at the old cancer centre until I started to have a family—three kids—and never intended to work ever again,” says Cherryl Wares, director of Volunteer Services for the Tom Baker

Cancer Centre. “Then about seven years ago I was diagnosed with cancer. I still remember going in through the doors of the cancer centre where I used to work and being in a complete and utter tizzy. I didn’t know my left hand from my right hand. I thought to myself, I should know where I am going, and I didn’t. I can remember Dr. Brown coming up and he said, ‘What are you doing here?’ So I talked to him a bit and he just put his arm around me and said, ‘Don’t worry Cherryl. We’ll look after you.’ Going through that experience made me realize that there has to be something more for patients, in term of support. The staff do a wonderful job, but there are gaps.”

Mrs. Wares began working part time for the Tom Baker and eventually became director of Volunteer Services. Today close to 185 volunteers help fill in the “gaps” at the Tom Baker Centre. At the Cross Cancer Institute in Edmonton another 450 volunteers supplement the medical staff. “About 70 per cent of our volunteers either have been patients themselves or have had close family members or friends who are patients,” says Mrs. Joyce Howarth, director of volunteer services for the Institute. She explains that there is a very low turnover of volunteers and seldom a need to recruit. Volunteers do everything from manning the coffee and gift shops, dressing hair and providing wigs to visiting with patients undergoing treatment. “Sometimes patients get out of the examination rooms and are left for half an hour,” says Mrs. Wares. “That’s where a volunteer can come in, visit with the patient and reassure him.”

Another group of volunteers work in the community, providing one-to-one support or offering a much needed service, such as sitting with a patient. At the Tom Baker, volunteers occasionally babysit for parents with a child dying of cancer. “It is not everybody who has a huge circle of friends and relatives in the community,” explains Mrs. Wares. “You don’t always want to leave a sick child with a couple of older siblings or a teenage babysitter.”



Pat Webber, who was first diagnosed with breast cancer in 1964, says it helps her to know that there are support services available should her husband and children ever need them. Her treatment began with radical surgery followed by radiation. “I recovered well from both events. Then they discovered cancer again as skin nodes nine years later. Since then I’ve had 14 years of various types of treatment. I lost the other breast due to surgery, and during the last three years, I’ve had both chemotherapy and radiation. Several times I’ve been given months to live but I’m still here. I set my family back on their heels a few years ago. I ended up in intensive care. Somehow or other the fight with the disease has made the family stronger. I’m more precious in their eyes.”

Mrs. Webber helped found the Reach to Recovery program in Alberta, a volunteer service that helps women who have had breast surgery. She now assists at the Reach to Recovery booth at the Tom Baker Centre. She also talks to patients on



a one-to-one basis.

Pat Webber: "One woman I talk to on an ongoing basis has lung cancer and was undergoing chemotherapy. At first she was terrified. Often I went for coffee with her. She did most of the talking and it was easy for me to say, I know how you feel. She needed someone to talk to—another cancer patient she could feel comfortable with. Her perception was that chemotherapy was a last-ditch thing. Years ago it might have been, but it is not that way now and I was able to reassure her and ease her worry."

One day a week Jim Munsey drives cancer patients from the outpatient residence at the University Hospital to the Cross Cancer Institute. The patients staying at the residence are from rural Alberta, outside Edmonton.

"Over the years you meet a large number of patients. They're from all walks of life, but they all have that one common thread—they're all suffering from the same disease. I particularly like the group that I work with because they are mostly rural people. I'm from a rural background and I find they are a little more appreciative of what is done for them. Some of them are there at the outpatient residence for six weeks and I drive one day a week, so you get to know them fairly well.

"They're scared. They're a little intimidated, a little apprehensive, but they really appreciate everything that is done for them. So you go out of your way to give them a bit more. You kibitz with them. If they have a little problem with getting across town to pick up some prescription or parcel, you might just pick it up for them. Or if they're going home on the weekends and you're driving Fridays, you might take them to the bus depot rather than having them get a taxi.

"Mainly you kid them. I'm an old railroader, and old railroaders are notorious kidders. Old Clifford was talking about winter. 'Don't get out much in winter. Poor circulation in my foot.' He wears a cowboy hat, like an old Texan, and I said, 'Why don't you have good circulation in that foot, Clifford? A horse fall on it?' 'By god, as a matter of fact he did.' Then I sat there five minutes while he told me how a horse fell on his foot. He appreciates that."



Call him Joe. At 45 he is diagnosed with throat cancer, now so advanced he faces a laryngectomy. His voice box will be removed and he will have a hole in his throat. At first he won't be able to talk at all, but after therapy he may learn to speak with his esophagus or an artificial larynx. The whole process is frightening.

Jan Scott, social worker at The Tom Baker Cancer Centre, will walk him through the fear. Before the operation, she gets to know Joe, his strengths, his support system, his values and how important his appearance is to his self-esteem. While he waits for the operation she will teach him relaxation techniques. He will also meet a volunteer who has had a laryngectomy and is living a healthy, well-adjusted life. The volunteer will be his friend in the days to come.

"I go through the grief process with him because there is always some grieving involved with a change in your body, at losing your voice. After that it depends on the person, how important his voice and appearance are to him. Sometimes there has to be a value shift.... I also work with Joe's spouse to explore her feelings of grief over the changes in her husband because her reaction can mean the difference between Joe adjusting well or not."

After the operation Ms. Scott takes Joe through a desensitization process. For example, she will accompany him on his first "public" outing to the hospital cafeteria. Most of all she will help Joe see himself positively. "I help him look at himself as someone special, not as a freak. I want him to see he has

met a challenge. He's got something to be proud of and something to share with people."

Jan Scott specializes in counselling patients with disfiguring cancers, but like the other members of the Calgary psychosocial team, her work involves many other tasks—teaching patients stress management techniques, showing parents how to help their children cope with an ill or dying parent, marital and bereavement counselling. Whatever the task, the emphasis is the same.

"They have cancer and maybe they can't be cured, but they have a choice as to their attitude and what they do with it. They can choose to bring good out of it or they can choose to make life miserable for themselves and others," says Ms. Scott. "Usually we can really help in that choice: sometimes we can't."

Jan Scott says after seven years of working with cancer, she doesn't like the disease any better. Working on the smoking cessation program is a positive boost because it's prevention, but there's another reason she continues the work.

"We meet the real heroes of society. That's probably one of the things that keeps me from burning out. Cancer patients have a tremendous appreciation of life and of what is important in life and they show me how to appreciate life so much more. We have some skills that help them cope, but just what people do on their own is absolutely fantastic."

Helping patients to express their feelings may be the most therapeutic thing we do," says Dr. Barry Bultz. "If they talk about the issues they are most frightened about, they may go through moments of crying to extreme anxiety, but the sharing in itself is healing." It is a major step in breaking what traditionally has been 'the conspiracy of silence' between physician and patient, between the patient and his or her family.

Dr. Bultz is Director of the Department of Psychosocial Resources in Calgary which includes three psychologists, three social workers, consulting psychiatrists and a number of research associates at the Foothills Hospital and the U of C.

Dr. Bultz explains, "It's important the staff are trained, experienced clinicians who do much more than 'hold hands.'"

Their work usually begins when the patient hears the diagnosis, for many the most difficult time of all. Patients are supported by being told what they may expect medically and emotionally as they face the crisis of cancer. For example, they learn it is common to go through a period of silence, withdrawal and self-isolation. Learning to talk about the process can alleviate the suffering of loneliness. "It can be a fine line—encouraging them to talk, but respecting their privacy. We work at creating a nurturing environment, usually through education about what they might expect," says Dr. Bultz. Patients are also taught coping strategies to deal with the anxiety of diagnosis and the later anxieties they may have about treatment.

Teaching strategies is only one aspect of the psychosocial healing process. The other is facilitating personal growth. "Cancer can be a catalyst for looking at issues that have been on the back burner and for changing a person's perspective on life," explains Dr. Bultz. He recalls one woman who found it almost impossible to maintain a vigil at her stepfather's bedside during the last two weeks of his life. Eventually for the first time, she was able to tell him how she'd grown to love and need him.

Mary Anne McDonald recalls how much she relied on Dr. Bultz's professional guidance. Mary Anne's husband, Don, entered the terminal phase of his cancer the same week their daughter was born. The dual responsibility of caring for Don and a newborn was overwhelming.

"I felt like my life was a puzzle and someone had put the pieces in a paper bag, mixed them up and dumped them on the floor. My life was a big mess.... My friends were terrific but I needed Dr. Bultz too. I would listen to a professional. He taught me my fears were normal and helped keep me focused on a direction that helped me grow," she says.

When Mary Anne felt panic, she resisted the temptation to call Dr. Bultz. Instead she tuned into her inner strength and practised the coping techniques he had taught her. "Looking back I don't think things could have been done any better," says Mary Anne.





Modern medicine has succeeded in postponing death. Once death becomes inevitable, too often health care givers have not known how to care for the dying. Fortunately, that is changing. Palliative care programs like the one at the Cross Cancer Institute are leading the way towards understanding the need for care that attends to a dying patient's physical, emotional and spiritual well-being. It is comprehensive care that includes the patient, the family, and the community.

"One of the greatest fears of cancer patients and their families is that they will be told directly or indirectly, 'I'm sorry nothing can be done,'" says Dr. Neil MacDonald, director of the Cross Cancer Institute.

"One of the things palliative care brings out is that while we all must die and some die sooner than others, there are positive ways to help people have the greatest quality of life possible in the days that are left. There's always something more that can be done. We never abandon a patient. With the palliative care program that sense of abandonment that patients and their families formerly felt is far less than it was."



Hannelore is suffering much pain with multiple myeloma. Three years ago she would have spent the last stretch of her life at the Cross Cancer Institute so her severe pain could be controlled. Instead, she is an outpatient living at home in Wetaskiwin because of a computerized drug pump that, at the touch of a button, administers narcotics. The control box looks like a Walkman that hooks on at the waist. The computerized pump can be programmed to deliver a continuous set rate of narcotics. It also has a dose button the patient can push for additional medication if the pain becomes severe.

The equipment is the newest generation of infusion pumps introduced by Dr. Eduardo Bruera at the Cross Cancer Institute in one of many studies conducted by The Pain and Symptom Control Research Group. Until recently few researchers addressed pain control and many Canadian hospitals still offer only traditional treatments for pain such as IV delivery of standard narcotics.

But IV drug delivery is only one way. Drugs delivered orally, under the tongue or injected into the spinal area may be more effective. New combinations of drugs are often more potent and have fewer side effects.

Not all pain is the same and a careful assessment of the nature and location of pain determines treatment. Massage, visualization, music therapy, distraction techniques through activities, and electrical stimulation are helpful. Patients are also taught relaxation techniques and referred to acupuncture and hypnosis.

Most important, a body does not experience pain, a person does. To control pain physicians, nurses, physiotherapists, and psychologists all have to understand the patient as a person. Alice Weinlick, coordinator of the Supportive Care Program at the Cross Cancer Institute, explains, "You have to assess the physical pain and assess the suffering which is the emotional, psychological, and spiritual pain."

A sympathetic environment alters the patient's perception of pain.

Information is also crucial. "The old days of not telling the patients anything and just giving orders is long gone," says Mrs. Weinlick. "I teach them everything about the medications. They are often worried that the drugs might not work and they may have a fear of dying as a drug addict—it's a moral issue for them. I teach the difference between physical dependency and addiction and by teaching them we can alleviate some of the suffering."

Similarly, the suffering of the whole family must be treated. They too, are taught about medications. They can learn massage and relaxation techniques to help their loved ones. This helps alleviate families' fear of the unknown and of being unable to do the right thing. "We need to support the care givers at home so they can support the patient," stresses Mrs. Weinlick.

Mary taught everyone something about pain and dignity. She was a Northern Alberta single-parent of two teenagers.

After spending 21 days at the Cross Cancer Institute for pain control, one day she insisted, "My days are numbered and I want to be home. Book my flight for tomorrow." Mrs. Weinlick was concerned because Mary's pain was not fully under control and she would be travelling alone. But Mary (not her real name) couldn't wait for someone to drive up. "Alice, I will do it," she said. And Mary did because it mattered so much to her.

"I tell the staff what the patients want and value is more important than anything the medical staff wants to do," says Mrs. Weinlick. "I think of the patients as our guests. By that I mean, we walk them through the experience rather than taking care of them in a controlling, parental way.

We give them information, support and love, but the patient is in charge."

Palliative Care at the Cross Includes:

- Weekly pain control clinic in the Outpatient Department
- City wide pain consultation rounds
- Support Service Volunteers trained to support terminally ill patients and families
- Bereavement Follow-Up Programs including a weekly Grief Support Group
- Community Follow-Up Programs including liaison with the Edmonton Home Care Program

We decided the best treatment was aggressive chemotherapy," Dr. Anthony Fields explains to a group of University of Alberta medical students.

"When Tony says aggressive, he means aggressive," interjects Mary Ross, assisting Dr. Fields with his

Friday morning bedside tutorial.

Education is an important aspect of the work of the Cross Cancer Institute and the Tom Baker Cancer Centre. In co-operation with their associated universities, the centres offer comprehensive undergraduate and graduate programs in medical and radiation oncology. All staff hold university teaching positions, and during their final year of training, students rotate through the centres. Residents participate in the daily outpatient clinics and join physicians on their rounds through the centres.

"Many students are stimulated during their experience here to consider careers in oncology," says Dr. Fields, twice chosen Professor of the Year by University of Alberta medical students. Director of Medicine for the Institute and Associate Professor and Director of Medical Oncology for the University of Alberta, he coordinates undergraduate and graduate courses, including Oncology 520, the U. of A.'s first and only course in general tumor biology.

Dr. Fields, himself, discovered medical oncology as an undergraduate medical student at the University of Alberta. Involved in summer research projects, Dr. Fields worked with Dr. Larry Brox at the University of Alberta cancer research laboratory, the McEachern Laboratory. That experience led to

attending oncology lectures and conferences as a student. As a resident in internal medicine at St. Michael's in Toronto, he worked with Jim Goldie, now world famous for his hypothesis of drug resistance.

After further training at the Princess Margaret Hospital in Toronto, Dr. Fields returned to Edmonton to become one of the many Alberta graduates who staff the cancer centres. In the not too distant past, there were no opportunities to study medical oncology in Alberta, and the Alberta Cancer Board was forced to recruit outside Alberta, often outside Canada. Today, graduates not only staff the Alberta





cancer centres, but also work in centres across Canada.

"Medical oncology is a rapidly evolving field and one with a large scientific component," says Dr. Fields, explaining why he made oncology his specialty. "It is an enormous challenge because there is so much to be done." He pauses, then adds, "I always found it easy to get along with cancer patients. I don't know why but I found them easy to relate to."

Reflecting on the most important insight he gained as an undergraduate and resident, he says it is important to be able to comfort patients. "We cure a lot of people

but when we are unable to offer a cure, then it becomes important to comfort them and help them cope with their disease."

He adds that an oncologist should always be frank with his patients and that one should always remember that patients have the right to choose their own treatment. "The physician's role is to help them weigh the risks and plusses and help them make a decision."

At the cancer centres everyone is both teacher and student. Every day, nursing staff at the Alberta cancer centres are teaching patients and their families about cancer care. They teach patients how to manage the side effects of their chemotherapy, how to cope with their disease, how to care for themselves, including diet. They also teach patients about cancer treatment, helping them to make decisions about their own cancer care.

"It's especially difficult when patients can't see anything wrong with themselves," says Carolyn Taylor of the Tom Baker Cancer Centre. "They'll have had surgery and the doctor will say, 'We've got it all out, but in case it comes back, we'd better give you some chemotherapy. They'll think, 'The cancer is all gone so why should I put these poisons in me.' So you try to explain."

Nurses at the Cross Cancer Institute recently produced a series of teaching videos now being distributed nationally. Funded by Edmonton Home Care, the videos describe how to use the portable infusion pumps. The videos were such a success, the company distributing the pumps purchased copies for their national sales team to use as teaching tools. Smaller rural hospitals have also been purchasing the videos. The Tom Baker Centre recently produced a video that orients patients to the centre and helps them understand what they can expect as a cancer patient.

Because knowledge about cancer is constantly changing, oncology professionals keep informed about the latest advances. Nurses and physicians attend international conferences in specialty areas. A number of these have been hosted by the Tom Baker Centre and the Cross Cancer Institute on subjects such as palliative care and radiation sensitivity. Staff also provide leaders in continuing education programs for health care workers in the community.

Like most oncologists, Dr. Jim Russell sometimes has difficult decisions to make. He is a bone marrow transplant specialist at the Tom Baker Centre. Bone marrow transplants are technically quite simple to perform but patients are at risk for serious and potentially fatal complications, such as infection and graft-versus-host disease. However, without a transplant most patients will not live long. With one, there's approximately a 50 per cent chance of prolonged survival.

At the centre, a committee of physicians, nurses and psychologists decide if a patient should be offered the procedure. "So the burden doesn't fall on one person," says Dr. Russell. "In most cases it's not that difficult but there are those cases, where for one reason or another, the procedure doesn't have a very high chance of success. The dilemma becomes: at what point do you elect not to recommend a bone marrow transplant? I struggle with that a bit. I don't know the answer but my suspicion is that once you get below a 20 per cent chance for survival many patients might agree the potential suffering involved is not justified.

Dr. Russell is aware of the dangers of "the technological imperative," that is, giving patients complicated treatments because physicians feel they must "do something" regardless of what the patient has to go through. He expresses his primary concern for quality of life.

"The problem quite often is being concerned only with the physical outcome. To me survival sometimes becomes a secondary issue. I can think of situations where the patients survive but one's perception is that their quality of life is very poor or that they've not experienced whatever may be necessary to reconcile them to their condition. On the other hand, in what we call clinical failures—because the patient dies—we may see that the patient and family have come to terms with the whole issue. We can't define that



as failure. In other words we have to redefine success and failure. To me, success has more to do with

people coming to terms with their mortality and their humanity and also understanding that they're cared for. That's the central issue: we should all know that and be able not to concern ourselves only with the disease process.

"Of course it's easier to function this way in some situations than others and this largely depends on the depth of communication you have with the patient and family.

"I find I'm constantly surprised by the patients, surprised by the way a lot of them actually adapt so well to their predicament. Some of the ones who have impressed me most are teenagers who are in no doubt about the eventual outcome and yet manage to face that with

unexpected maturity.

"I would have anticipated the patients' expectations to be greater than mine and I'm often surprised when they're not. They're well informed to start with and the majority of them don't have unreasonable expectations for being cured. We often project those expectations onto them. At least I find I do. Because I make demands on myself and get disappointed when things don't go right, I also expect the patients to be disappointed or surprised, but that's not often the case."

Thanks to medical research 50 per cent of cancer patients have a five-year survival rate and many can live out a normal life span. By refining traditional

treatments and applying new technologies, the boundaries of success are being extended even further.

In cooperation with the two universities, the Cross Cancer Institute and the Tom Baker Cancer Centre have strong research programs which is one of the

primary reasons for the high quality of patient care. Alberta cancer patients can be assured that the latest advances are available to them because the two centres are part of a North American network of oncology research, particularly in medical pediatrics and radiation oncology. The Cross Cancer Institute is one of three Canadian cancer centres belonging to the 28-member international network for radiation oncology research. This means if physicians at, Johns Hopkins University for example, were conducting promising clinical trials for a new therapy, Alberta patients could choose to receive the experimental treatments because physicians here participate in multicentre trials.

All proposed research in Calgary or Edmonton is screened by committees to assess the quality of science and review ethics. Mrs. Joan

Rossall has been a lay member on the Ethics and Research Committee at the Cross Cancer Institute for 10 years. She explains, "This group of medical and lay people meet to ensure that all the rights of patients, asked to participate in research, are protected and that complete confidentiality and dignity are preserved. The committee also further ensures that no patient will be included in research projects without having been fully informed of the possible risks...and medical care will not be compromised should a patient choose not to participate."



International Leaders

In some areas it is the Alberta scientists who are leading others.

Dr. Don Chapman, director of Research at the Cross, and oncologist Dr. Raul Urtasun have pioneered work on therapy for radiation-resistant tumors.

Their studies focus on some of the most difficult tumors that cannot be treated satisfactorily, such as prostate, lung and brain tumors. Why does one tumor respond to therapy while another tumor of the same type does not?

Scientists are finding out tumors are very individual. If they can define those differences, therapy can be adjusted accordingly.

"This is a most difficult form of research because no two tumors are the same. They are heterogeneous in every respect," explains Dr. Chapman.

The Cross Cancer Team has found that certain tumor cells, called hypoxic cells, do not respond to radiation because they have too little oxygen. Dr. Urtasun has found small cell lung cancer has large clusters of these hypoxic cells. The discovery was possible because researchers found a drug called Misonidazole an effective marker to locate the hypoxic cells.

Happily, they've also discovered the same drug and other chemicals can be used to make radiation-resistant tumors more susceptible to radiation therapy.

Dr. Urtasun is collaborating with basic scientists to identify other molecular differences among these difficult-to-treat tumors. For example, if a tumor is missing a certain protein, it is likely to be resistant to certain chemotherapy. If the subclasses of tumor can be clearly identified, clinical trials of new therapies will be much more meaningful and pave the way for developing more individualized treatment.

Because of their expertise in tumor cell sensitivity, Drs. Urtasun and Chapman advise scientists at the National Cancer Institute in the US.

Dr. Urtasun is also attracting international interest for promising results using hemibody radiation for small-cell lung cancer. This means radiation is directed toward the whole upper half of the body rather than simply targeting it directly to the tumor cells.

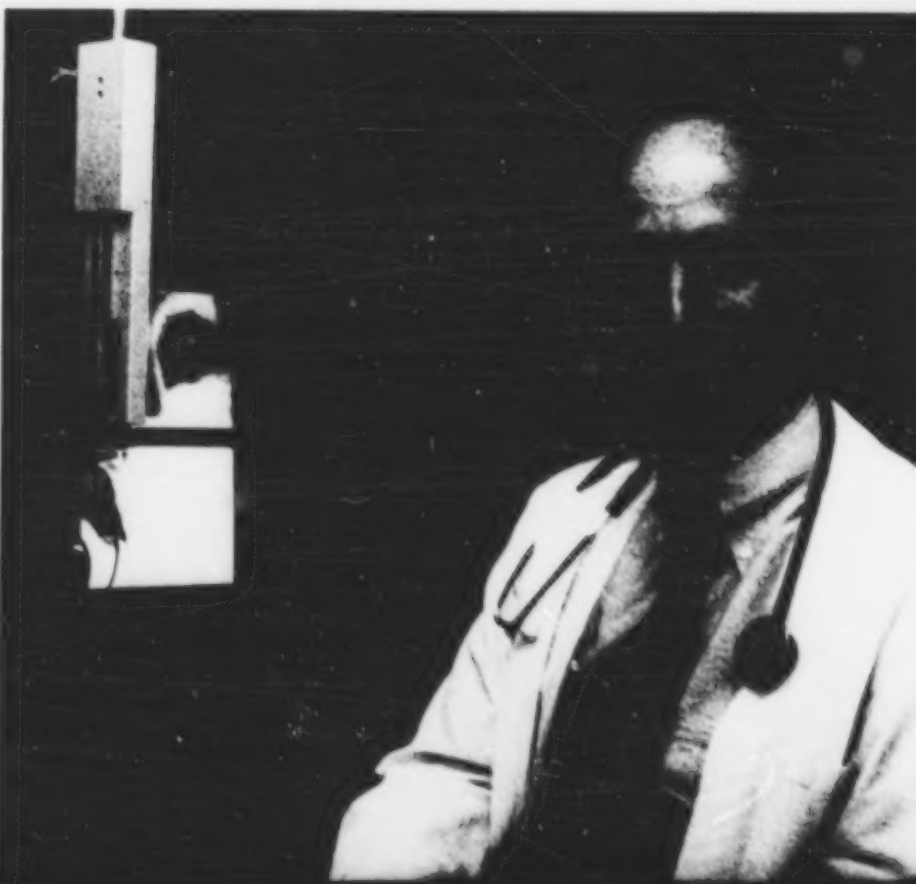
"Ideas that came from Edmonton have put us on the international map. The question is how much

do the patients get out of the research?" asks Dr. Urtasun. He continues, "I can tell you any patient entered in a research protocol gets excellent attention. For some patients the length of survival has improved and in others we were able to decrease the side effects, but we have not found a breakthrough cure

or markedly improved the results yet."

Like all cancer physicians who also do research, Dr. Urtasun finds the research activity is essential for the morale of patients and physicians.

"You have to give the patient hope with something new—but with prudence, always asking, 'At what price?'"





Multiple Studies

The radiation studies are an example of a major research thrust which extends from the basic lab to clinical trials, but there are many other areas of research at the two cancer centres. The prostate and breast cancer studies have been described earlier in this report. Other areas include:

- **Effective Combination Therapy:** Clinical trials are determining the best dose and timing for combined radiation and chemotherapy to treat colorectal and other cancers. (Dr. Alfred Wong, TBCC)
- **Photodynamic Therapy:** Laser light is absorbed by a drug molecule and the energy is transformed to make a toxic oxygen product that destroys malignant cells. This research is largely at the animal stage with a pilot study on human bladder cancer. (Dr. Malcolm McPhee and Dr. Don Chapman, CCI)
- **Dosimetry Studies:** These are undertaken by the medical physics department to refine radiation programs and apply advances in nuclear medicine to diagnosis and therapy. (Dr. Jerry Battista and Dr. John Scrimger, CCI)
- **MR Analysis:** Magnetic Resonance is an imaging technique that, unlike x-rays or CT scans, can also give information about tissue function. MR is used to study how radiation therapy for brain tumors affects surrounding healthy brain tissue. (Dr. Raul Urtasun and Dr. Peter Allen, CCI)
- **MABS:** Monoclonal antibodies are proving useful to diagnose and monitor certain cancers such as liver cancer. (Dr. Grant MacLean, CCI)
- **Ovarian Cancer:** An epidemiological survey focuses on how oral contraceptives, or bearing no children, affect the incidence of ovarian cancer. (Dr. Maria Koch, ACB)
- **Melanoma Studies:** Calgary physicians are collaborating on World Health Organization trials to determine the best surgical treatments for melanoma. Another WHO study tests the effectiveness of heated drugs on recurrent limb cancer. (Dr. Martin Jerry, TBCC)

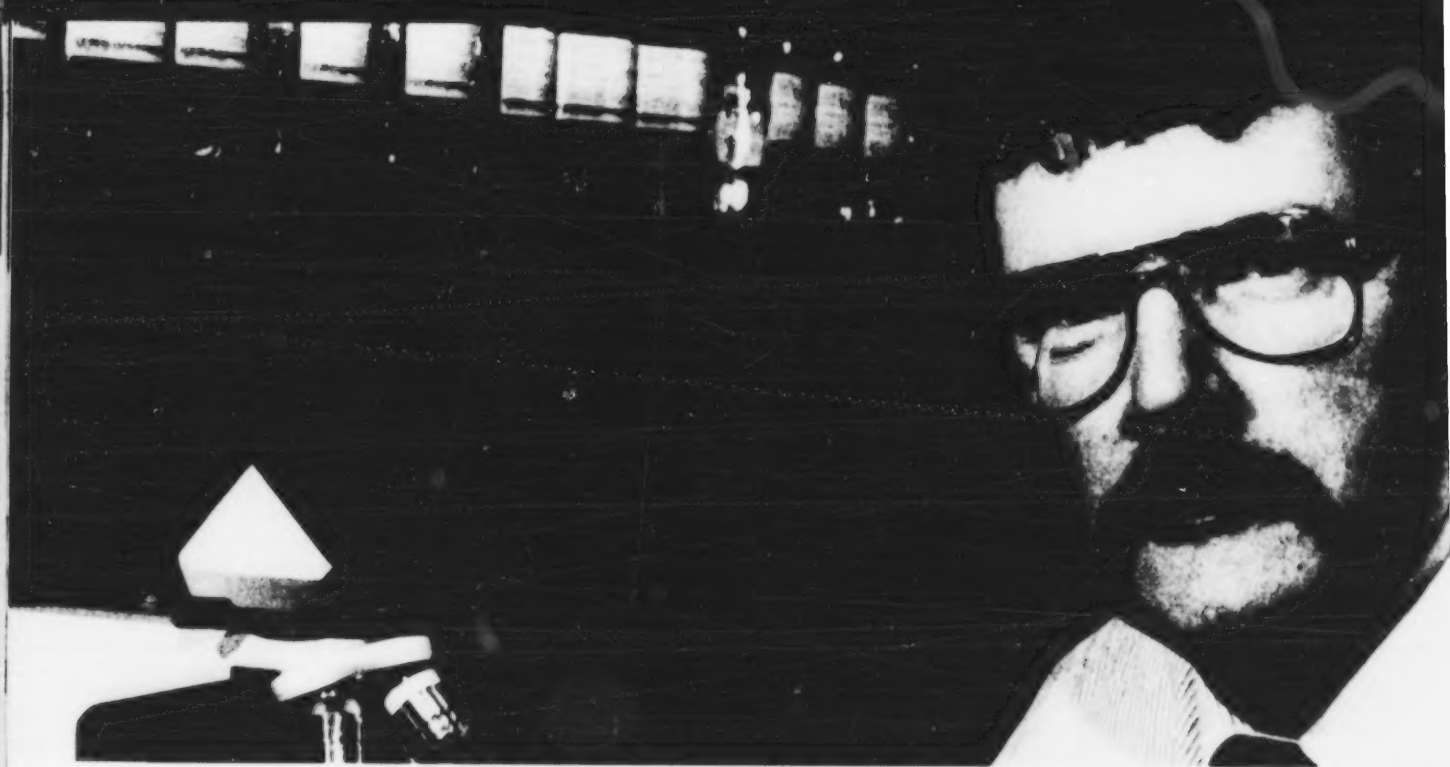
Is Cancer Inherited?

Cancer per se is not inherited, but apparently a susceptibility to cancer is. Dr. Malcolm Paterson is discovering the genetic basis for such a susceptibility. Internationally recognized for his ground-breaking work on the heredity of cancer, Dr. Paterson heads a \$2 million research program at the Cross Cancer Institute, largely funded by The Alberta Heritage Foundation for Medical Research.

"Although as many as 90 per cent of all human malignancies have been blamed on the environment, by far the most potent risk factor is the genetic component," says Dr. Paterson. He is investigating the underlying molecular mechanisms involved in the interaction between hereditary and environmental factors. Normally when we are exposed to a carcinogen such as sunlight, DNA is damaged, but there is a natural process to repair it.

Dr. Paterson has found this DNA repair process is faulty in people who have rare hereditary familial diseases that predispose them to cancer.

His research also focuses upon understanding the role of oncogenes in the fundamental process that causes cancer.



A New Kind of Cancer Therapy

Traditionally there have been three kinds of cancer therapy: surgery, radiation and chemotherapy. There is a fourth modality emerging from research called immunotherapy. Immunotherapy makes use of compounds produced by the body's own immune system to fight disease. Compounds such as interleukin and interferon are produced by helper cells in the immune system to activate the killer cells that attack malignant cells.

In 1986 Dr. Steven Rosenberg of the National Cancer Institute in the U.S. made headlines with the news that interleukin-2 treatments dramatically shrunk some kinds of tumors. One of Dr. Rosenberg's colleagues, Dr. Rene Lafreniere, has moved to the Tom Baker Cancer Centre where he cares for patients as an oncology surgeon and continues the immunotherapy research with

funding from The Alberta Heritage Foundation for Medical Research.

Though the new treatment and variations of it look very promising, they are far from ideal because they are prohibitively expensive and have severe side effects. Dr. Lafreniere is attacking these problems in animal research at the Tom Baker Cancer Centre and will move to clinical trials when it is appropriate. Dr. LaFreniere is enthusiastic about the potential of immunotherapy, but he cautions that the field is still in its infancy. It will be years before the therapy would be developed enough for general patient care.

Dr. Lafreniere's work adds to an ongoing immunology research program headed by Dr. Martin Jerry. Studies include identifying drugs that modify the host's immune response to a tumor, examining at the molecular level how host cells respond to tumor cells, and neuro-immunological studies on how a patient's attitude affects his or her physiological response to tumors.

The Department of Epidemiology and Preventive Oncology is a division of the Alberta Cancer Board. Epidemiologists gather

information about the incidence of disease according to age, geography, occupation, and other factors. Surveys also track survival rates and results of research.

The ACB Department of Epidemiology, headed by Dr. Gerry Hill*, maintains the provincial Cancer Registry with data from the Calgary, Edmonton and Lethbridge clinics. Registry statistics are then forwarded to Statistics Canada for national reporting and to the International Agency for Research on Cancer. The information is also used to plan Alberta cancer care facilities for the future.

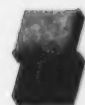
Dr. Jerome W. Yates, associate Director for Clinical Affairs at Roswell Park Memorial Institute, said the Alberta Cancer Board has developed a superb Tumor Registry. He stressed that this is an integrated patient information system that provides a unique opportunity to undertake population studies.

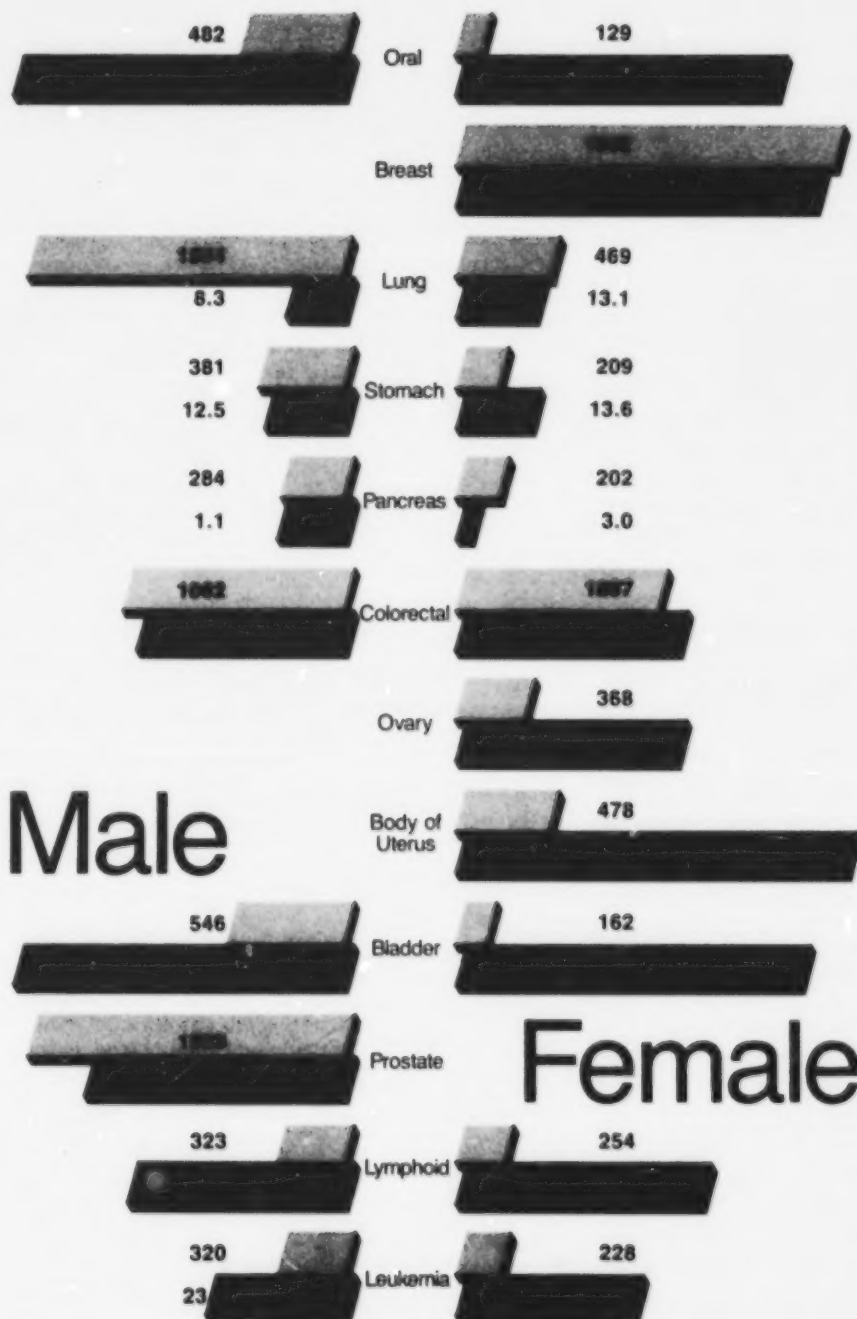
The Cancer Registry is used by many Alberta scientists as a data base for research projects, and department staff provide statistical consultation for clinical investigators. The staff also conduct independent epidemiological studies, including in-depth field interviews. For example, a study of the effectiveness of screening for early diagnosis of colorectal cancer was conducted in cooperation with physicians from the medical community. Other studies are investigating occupational health, thyroid, skin, and female genital tract cancer.

Prevention activities of the ACB fall within the Department of Epidemiology. Two activities include the Steve Fonyo Prevention Program (see page 29) and a film on cancer prevention which has been repeatedly aired on television.

*As of June 1987, Dr. Hill became Professor in the Department of Epidemiology and Biostatistics at McGill University.

Five Year Cancer Survival Rates for Selected Sites by Sex Cases diagnosed 1979-1981

 Total
% Survival



Per cent Distribution of Cancers by Site Alberta 1985



4.5	Oral	1.6
—	Breast	28.6
17.9	Lung	8.2
3.5	Kidney	—
4.4	Stomach	2.7
3.1	Pancreas	2.6
13.4	Colorectal	13.2
6.3	Bladder	2.2
—	Ovary	5.0
—	Uterine	7.0
20.0	Prostate	—
7.6	Leukemias and lymphomas	6.3
19.3	all others excluding N.M. Skin and in situ	22.6



Miss Lily White has the sun smarts. On a fine summer's day she went to the Lethbridge Fair where she handed out sunscreen and information cards so that others would become sun smart too. Miss Lily White is part of a community-based project to educate people about cancer prevention.

The innovative Steve Fonyo Cancer Prevention Program is designed to teach Albertans how they can reduce their chances of getting certain kinds of cancer. Established in 1986 by the Alberta Cancer Board, the program is funded by a \$1.1 million grant from the Steve Fonyo fund. (The Government of Alberta matched the money Albertans gave during Steve Fonyo's run.)

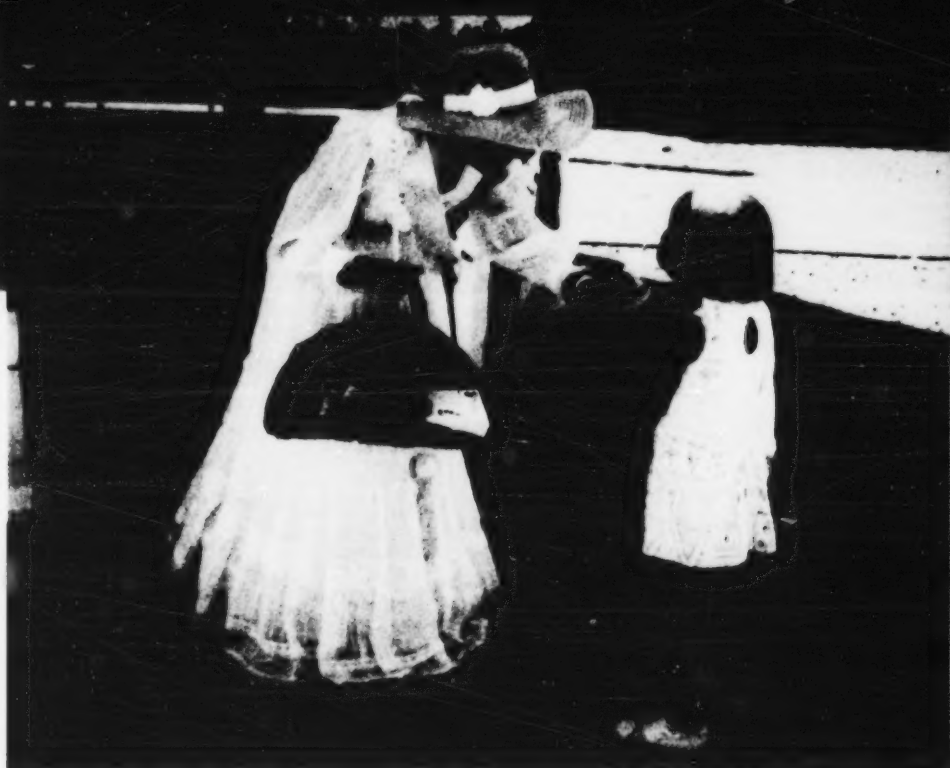
Clearly, prevention is the most effective health care and some cancers can be prevented. Sixty to 70 per cent of all cancers are caused by lifestyle—what we do and what we eat. The initial response to the Steve Fonyo Program indicates Albertans are eager for information and new tools to help them change habits.

The program has two components, one aimed at individual intervention and one at general community education. The focus of the individual program is a risk assessment questionnaire about sun exposure, eating habits, smoking, and family history of cancer. The respondent is mailed back an individual assessment of his or her cancer risk and suggestions for improving it. If desired, the results will be forwarded to the family doctor.

People can also request self-study packages on diet, smoking, sun exposure, and early detection of breast, bowel and cervical cancer. They can attend classes on these topics or consult with the nurse coordinator.

They can also telephone the Cancer Prevention Line for information.

The individual risk assessment



program is running in Red Deer and Lethbridge in cooperation with the local health units. Two thousand questionnaires have been completed and eventually every household in the two cities will be canvassed.

Judy Birdsell, coordinator of the Steve Fonyo Program, says, "The response in both cities has been overwhelming. It's amazing how interested people are."

She cites the story about an elderly lady in Red Deer. "The questionnaires are delivered and picked up by hand because it's cheaper than mailing. One questionnaire was dropped off to an elderly lady and when the worker returned to pick it up, she saw the woman being carried out of her house on a stretcher to an ambulance. The woman lifted her head and said, 'It's in the mailbox.'"

The second aspect of the Steve Fonyo Program taps the creativity and energy of community leaders to launch educational programs on cancer prevention. The two target cities, Lethbridge and Medicine Hat, have responded most enthusiastically.

Each has a volunteer advisory board and a part-time, paid coordinator. The Lethbridge group sponsored Miss Lily White and local radio announcements. Next year the Lethbridge Jaycees will give out cancer risk information with car seats that new parents rent from the health unit in the "Buckle Up Babe" program. The Medicine Hat group had a float in their summer parade and blitzed the community with posters.

"The people in the community have been wonderful," says Ms. Birdsell.

"They come up with the ideas and the people to do the job and we provide a little bit of money, but in the whole scheme, it's very little. This is something to build on for the future. There are a lot of options. For example, using the material from the questionnaires someone could create risk tests for computer games in shopping malls. If we're successful, the cancer prevention program will continue in the cities when we leave."



Hundreds of Calgarians have dramatically reduced their chances of getting cancer because they stopped smoking through smoking cessation classes led by Jan Scott and Dr. Paul Taenzer at the Tom Baker Cancer Centre. Ms. Scott and Dr. Taenzer adapted and improved on existing stop smoking classes and the results of 15 classes over five years show the program is exceptionally successful. In 1986, 75 per cent of the students who completed the course graduated, that is, they stopped smoking for three months. One year follow-up surveys show the majority have stopped for a year.

Jan Scott suggests their success is due to several factors.

Recognizing that smokers will quit for different reasons, a smorgasbord of approaches is used. They include behavioral modification, stress management techniques, (because smoking may be the only one students use) an emphasis on the positive, and a problem-solving approach.

"Smokers already know all about the negative aspects of smoking," says Ms. Scott. "We emphasize the positive. We always have everyone in the class share the good things about not smoking. They usually say they can smell better, taste food better, and have more stamina but sometimes some amazing things come out. Someone might say they don't have migraines any more. We often hear that children's allergies have improved when parents stop smoking."

Once students have learned the problem-solving approach to smoking, and they encounter cues to start smoking again, they can see them as a problem to be solved. This gives people more control over the situation and helps prevent relapse.

Role models are also important. Towards the end of the five sessions, when students are experiencing the agonies of withdrawal and wondering if the effort is worth it, graduates



visit the class to show students that not smoking gets easier and is very worth it. They meet people who used to smoke four packs a day or smoked for 50 years and they think "If they can quit, so can I."

Word of the successful course has spread as far as the Northwest Territories where Ms. Scott and Dr. Taenzer were invited to train others to lead the classes. They also helped train instructors for the community classes sponsored by The Steve Fonyo Prevention Program in Red Deer and Lethbridge.

Alberta Cancer Board
Balance Sheet as at March 31, 1987

	1987	1986
Assets		
Current:		
Cash	\$ 16,852	\$ 105,460
Short-term deposits	6,532,000	4,906,000
Accounts receivable	2,836,571	3,086,598
Inventory, at cost	1,185,173	1,280,528
Prepaid expenses	152,558	188,242
	<u>10,723,154</u>	<u>9,566,828</u>
Funds held in trust by Alberta Cancer Foundation	3,549,031	3,549,031
Fixed, at cost:		
Furniture and equipment	20,765,976	19,125,563
Leasehold improvements	3,145,069	2,890,658
	<u>23,911,045</u>	<u>22,016,221</u>
	<u>\$38,183,230</u>	<u>\$35,132,080</u>
Liabilities and Equity		
Current liabilities:		
Accounts payable	\$ 4,564,797	\$ 4,519,664
Research project grants payable	1,524,243	1,955,552
Due to Alberta Cancer Foundation	—	14,699
Due to Department of Hospitals and Medical Care	534,624	215,644
	<u>6,623,664</u>	<u>6,705,559</u>
Equity:		
Equity in fixed assets	23,910,045	22,009,221
Surplus	3,649,490	2,417,269
Funds entrusted to Alberta Cancer Foundation	3,549,031	3,549,031
Contributed surplus	451,000	451,000
	<u>31,559,566</u>	<u>28,426,521</u>
	<u>\$38,183,230</u>	<u>\$35,132,080</u>

32 Financial Statistics

Alberta Cancer Board

Statement of Revenue, Expenditure and Surplus for the Year Ended March 31, 1987

	Operating	Discretionary	Capital	Alberta Heritage Research Projects
Revenue:				
Grants:				
Recurring	\$41,022,266	\$ —	\$1,680,748	\$4,802,666
Non-recurring and other	1,244,403	—	—	—
Patient charges	720,051	73,216	—	—
Interest	—	460,720	—	17,495
Donations	—	—	575,304	—
Other	440,022	79,048	—	—
Ancillary operations:				
Edmonton Radiopharmaceutical Centre	—	762,521	—	—
Parking	—	150,722	—	—
	<u>43,426,742</u>	<u>1,526,227</u>	<u>2,256,052</u>	<u>4,820,161</u>
Expenditures:				
General	42,808,105	203,789	—	—
Research	—	—	—	4,534,900
Acquisition of fixed assets	—	6,188	2,256,052	285,261
Ancillary operations:				
Edmonton Radiopharmaceutical Centre	—	666,338	—	—
Parking	—	47,445	—	—
	<u>42,808,105</u>	<u>923,760</u>	<u>2,256,052</u>	<u>4,820,161</u>
Excess of revenue over expenditure for the year	618,637	602,467	—	—
Surplus (deficit) at beginning of year	(14,361)	2,114,077	—	—
Transfer to Funds entrusted to Alberta Cancer Foundation	—	—	—	—
Surplus at end of year	<u>\$ 604,276</u>	<u>\$2,716,544</u>	<u>\$ —</u>	<u>\$ —</u>

A copy of the complete audited financial statements is available from the Alberta Cancer Board.

Endowment and Trust	Total 1987	Total 1986
\$ —	\$47,505,680	\$45,095,880
—	1,244,403	—
—	793,267	852,073
21,948	500,163	578,560
1,095	576,399	1,506,665
—	519,070	686,475
—	762,521	692,647
—	150,722	147,839
23,043	52,052,225	49,560,139
—	43,011,894	40,185,564
11,926	4,546,826	4,222,516
—	2,547,501	3,818,618
—	666,338	633,590
—	47,445	29,995
11,926	50,820,004	48,890,283
11,117	1,232,221	669,856
317,553	2,417,269	1,800,506
—	—	(53,093)
<u>\$328,670</u>	<u>\$ 3,649,490</u>	<u>\$ 2,417,269</u>

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